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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,275	09/11/2003	Kenichi Kataoka	03500.014863.1	5681
5514	7590	11/17/2004	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			KO, TONY	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	
			2878	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/659,275

Applicant(s)

KATAOKA, KENICHI

Examiner

Tony Ko

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 50-89 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 73-85 is/are allowed.
- 6) ☒ Claim(s) 50-72 and 86-89 is/are rejected.
- 7) ☒ Claim(s) 50,52,54,66,71,73 and 86 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/685,930.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/03</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

Claims 50, 52, 66, 71 and 73 are objected to because of the following informalities: Regarding claim 50, "the function", regarding claim 52, "the function", "the relative rotation", "the detection", "the two beams", regarding claim 54, "the circle", regarding claim, regarding claim 66, "the incidence position", regarding claim 71, "the incidence position", "the plurality of independent light receiving element ", "said light receiving element", "the signal", "the circle", regarding claim 73, "the function", "the beam", "the basis", regarding claim 86, "the detection", "the incidence position", "the calculation", "the angle" and "the detected" lack of antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 50-64, 64, 70-72, 86-89 as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yi Zi (US # 4,760,436) in view of Ishizuka (JP 62-200225).

Regarding claims 50-60, 70-72, and 86-89, Yi Zi discloses a beam rotation angle detecting apparatus and method comprising: two member rotatable (Col. 5, Lines 7-13), an arithmetic system (11), two light emitting portions (Fig. 6b, #8a and #8b) moving along a circle or an arc may coincide with the center of said light receiving portion, two circular light receiving portions proportional to the radius (Fig. 1, #2 and Fig. 6b) for detecting incidence positions of at least two beams moving on concentric circles in a ratio (Abstract) at a predetermined timing and address, which is inherent from processing circuit, 11, and setting the value of the address so the address corresponds to the light receiving element from near the beam incidence position detected by said means for producing and detecting on the basis of angle information corresponding to said beam incidence position and a change therein (Fig. 3, #11) and expecting and executing detection independently in each of a plurality of angle areas by adding information (Fig. 6 and 6b) along with a system to determine the angle (Col. 5, lines 7-13) between a straight line (Fig. 6 and 6b) along with a sytem to determine the angle (Col. 5, lines 7-13) between a straight line (fig. 6b, line through #8a and #8b) and a predetermined reference line (Fig. 6b, #6) and selecting the angle areas on which the beams are to be incident (Fig. 6a and 6b). Yi Zi further discloses for detecting a difference between characteristics of at least two incidence beams (8a, 8b).

Yi Zi does not disclose the correction of a rotation angle detection position for the beam on the basis of an eccentricity between rotation centers of the two beams and a center of said ring-shaped portion of said light receiving portion, windows, condenser, light reflecting means, a diffraction grating and refracting members.

Ishizuka discloses to prevent a measuring accuracy from being decreased by the eccentric error between the rotational center of a rotating object and the center of a radial grating by letting light beams be incident upon a plurality of positions different from one another on a diffraction grating (Abstract), windows (4,8), condenser (2), light reflecting means (10), a diffraction grating and refracting members (M1, M2),

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the windows, condensing system, and light reflecting means of Ishizuka with the apparatus of Yi Zi to identify and provide more accurate detection.

Regarding claims 65-69, Yi Zi in view of Ishizuka discloses the invention set forth above, the invention set forth above does not disclose the arithmetic system adds and divide angle information then corresponding to two or more incidence positions selected from among a plurality of beam incidence position detected by said light receiving portions. It is well known to have the arithmetic system to perform desired calculations such as divides the incidence position and normalize the radius to further process the data.

Claims 61-64 as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yi Zi (US # 4,760,436) in view of Ishizuka (JP 62-200225) and Igaki (US #5,483,059).

Regarding claims 61-64, Yi Zi in view of Ishizuka discloses the invention set forth above, Yi Zi in view of Ishizuka does not disclose the deflecting and refracting means is formed with a plurality of patterns of a predetermined cross-sectional shape forming a

reflecting surface forming a predetermined angle with respect to the relative rotation plane of said one member, said patterns being continuously formed in parallel with the rotation plane, the said patterns of a predetermined cross-sectional shape are linear grooves or projections, or recesses of at least triangular polygonal pyramidal shape.

Igaki discloses (Figs. 22A, 25) the deflecting and refracting means (83) is formed with a plurality of patterns of a predetermined cross-sectional shape forming a reflecting surface forming a predetermined angle with respect to the relative rotation plane of said one member, said patterns being continuously formed in parallel with the rotation plane, the said patterns of a predetermined cross-sectional shape are linear grooves or projections, or recesses of at least triangular polygonal pyramidal shape.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to place such a reflecting and refracting device to divide the beams to reduce the cost of having two light sources.

Allowable Subject Matter

Claims 73-85 would be allowable if rewritten to overcome the objection(s) under set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 73-85 prior art does not show the arithmetic system calculating corrected angle information in which a decentered amount of the beam is corrected by adding the calculated angle information.

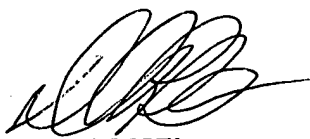
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Ko whose telephone number is 571-272-1926.

The examiner can normally be reached on Monday-Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TKo



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